4.4 Groundwater Discharge

A groundwater flow model was developed by the USACE Hydrologic Engineering Center. The model was broken down into four areas based upon discharge estimates (Fenske 2003). Several different scenarios were modeled to show the change in discharge based upon climatic changes. The values used in this report are the normal average year, average spring and average fall. Modeling was also conducted to show a dry and wet year. See Appendix B for a more detailed discussion.

Table 4-9, Table 4-10, and Table 4-11 depict the total groundwater discharge rates for each area. Figure 4-14, Figure 4-15, and Figure 4-16 depict the total groundwater discharge rates in for each area.

Table 4-9. South Lake Tahoe Area Total Flux from Groundwater to Lake Tahoe by Layer and Region, Average Normal Year (Fenske 2003)

Layer	Midpoint of Layer Elevation (ft above msl)	Total Flow into Lake m^3/year (acre-feet/year)			
		Region 1	Region 2 (Tahoe Keys)	Region 3 (South Lake Tahoe)	Region 4 (Stateline)
2	6222	$4.0x10^5$ (328)	$1.2x10^6$ (959)	$4.4x10^4$ (36)	$4.7x10^5$ (379)
3	6205	$5.8x10^4$ (47)	$1.2x10^4$ (10)	0 (0)	$7.2x10^4$ (58)
4	6180	$1.2x10^3$ (1)	0 (0)	0 (0)	$1.2x10^4$ (10)
5	6143	$1.2x10^3$ (1)	$1.2x10^3$ (1)	$1.2x10^3$ (1)	$8.0x10^4$ (65)
6	6059	$7.4x10^3$ (6)	$6.2x10^3$ (5)	$3.7x10^3$ (3)	$8.9x10^4$ (72)
Total		$4.7x10^5$ (383)	$1.2x10^6$ (976)	$4.9x10^4$ (40)	$7.2x10^5$ (584)

Table 4-10. South Lake Tahoe Area Total Flux from Groundwater to Lake Tahoe by Layer and Region, Average Spring (Fenske 2003)

Layer	Midpoint of Layer Elevation (ft above msl)	Total Flow into Lake m^3/year (acre-feet/year)			
		Region 1	Region 2 (Tahoe Keys)	Region 3 (South Lake Tahoe)	Region 4 (Stateline)
2	6222	$5.7x10^5$ (461)	$1.6x10^6$ (1,287)	$8.3x10^4$ (67)	$5.6x10^5$ (454)
3	6205	$9.0x10^4$ (73)	$1.7x10^4$ (14)	0 (0)	$8.5x10^4$ (69)
4	6180	$1.2x10^3$ (1)	$1.2x10^3$ (1)	0 (0)	$1.5x10^4$ (12)
5	6143	$2.5x10^3$ (2)	$1.2x10^3$ (1)	$2.5x10^3$ (2)	$9.7x10^4$ (79)
6	6059	$1.1x10^4$ (9)	$1.1x10^4$ (9)	$6.2x10^3$ (5)	$1.0x10^5$ (85)
Total		$6.7x10^5$ (546)	$1.6x10^6$ (1,312)	$9.0x10^4$ (73)	$8.6x10^5$ (699)

Table 4-11. South Lake Tahoe Area Total Flux from Groundwater to Lake Tahoe by Layer and Region, Average Fall (Fenske 2003)

Layer	Midpoint of Layer Elevation (ft above msl)	Total Flow into Lake m^3/year (acre-feet/year)			
		Region 1	Region 2 (Tahoe Keys)	Region 3 (South Lake Tahoe)	Region 4 (Stateline)
2	6222	$2.1x10^5$ (171)	$7.0x10^5$ (570)	0 (0)	$3.6x10^5$ (291)
3	6205	$1.9x10^4$ (15)	$7.4x10^3$ (6)	0 (0)	$5.6x10^4$ (45)
4	6180	0 (0)	0 (0)	0 (0)	$9.9x10^3$ (8)
5	6143	0 (0)	0 (0)	0 (0)	$5.9x10^4$ (48)
6	6059	$3.7x10^3$ (3)	$1.2x10^3$ (1)	$1.2x10^3$ (1)	$6.9x10^4$ (56)
Total		$2.3x10^5$ (190)	$7.1x10^5$ (578)	$1.2x10^3$ (1)	$5.5x10^5$ (447)